Chickahominy Lake
2007

Chickahominy Lake is a 1230-acre water supply reservoir located along the New Kent-Charles City county line. The low-head dam of this reservoir is known locally as Walkers Dam. This dam was completed in 1943 and it incorporates twin Denil fish ladders to allow for the passage of anadromous fish such as blueback herring and striped bass. This cypress-laden lake provides a spectacular backdrop for photographers and great place for bird watchers. The lake has historically been one of the best all around fisheries in Virginia. The lake's forage base is primarily based upon the populations of gizzard shad and blueback herring. A decent population of golden shiners is also present. Chickahominy Lake has a plentiful supply of fish habitat in the form of cypress trees, water lilies and submerged aquatic vegetation. Hydrilla and various other forms of submerged aquatic vegetation have been able to grow rather dense in numerous, shallow areas of the lake. The abundance of vegetation serves as a nursery area for many juvenile fish. Anglers must be willing to adjust to the heavy vegetation during the late spring to early fall time period.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Chickahominy Lake on April 25, 2006. The reservoir was last sampled on May 13-14, 2003. The 2006 electrofishing survey consisted of covering six shoreline sections. Each shoreline area took 20 minutes to sample for a combined effort of two hours. The combination of these six sampling runs provides a picture of the present fish assemblage. The water temperatures ranged from 22 to 23°C. Electrofishing efforts consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 4 foot depth range. The sample collected 17 fish species. Predator species of bass, black crappies, chain pickerel and bowfins were collected during each run. Species such as bluegills and redear sunfish were only collected over the course of three runs (one hour). This report will concentrate primarily upon the species of largemouth bass, bluegill, black crappie, bowfin, chain pickerel and redear sunfish.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	83	21.1"	10.6"
Bluegill	175	7.5"	3.2"
Black Crappie	19	12.9	8.4"
Chain Pickerel	21	20"	13.3"
Bowfin	95	30"	18"
Yellow Perch	11	9.1"	7.6"
Redear Sunfish	74	9.9"	4.6"

Table 1. Summary of the April 25, 2006 electrofishing survey for the primary fish species of Chickahominy Lake.

The largemouth bass population within Chiakahominy Lake appears to be in fair to decent shape. The overall size structure favors the presence of two main groups of bass. An abundance of juvenile bass less than 7 inches in length and a decent group of bass in the 15 to 21 inch range were collected. A total of 83 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 41.5 bass/hr. This catch rate is lower than most waters within the region. Although the catch rate is not very impressive, it is still slightly higher than the 2003 sample (CPUE 36.4 bass/hr). The average sized bass for runs 1, 2, 3, and 4 were very similar. The average length of bass from run 5 showed some improvement, with the few bass from run 6 having the best average length. Refer to Table 2 for comparison. The abundance of young bass in the 2006 sample brought down the overall average length of bass collected. A total of 34 juvenile bass less than 7 inches in length were collected. The size distribution of the collected bass can be seen on the enclosed length frequency graph.

Run #	1	2	3	4	5	6
# of bass	26	18	14	12	7	6
Average size	9.8"	10.4"	10.0"	10.2"	11.8"	16"
Max size	19.9"	21.1"	20.2"	16.9"	18.6"	20.9"
CPUE	78	54	42	36	21	18

Table 2. Largemouth bass abundance values for each sampling run along with the average size, maximum lengths and CPUE.

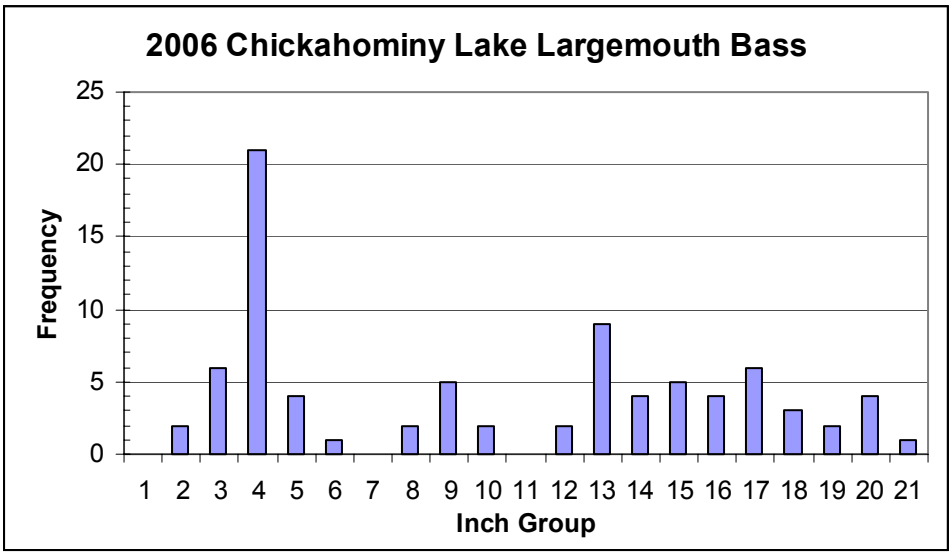

Figure 1. Length frequency distribution of largemouth bass collected from Chickahominy Lake on April 25, 2006 (N = 83, CPUE = 41.5 f/hr)

The 2006 distribution showed a high proportion of bass in the 13 to 20 inch size range (37 out of 83 bass, 44.6%). These bass will provide a great deal of the fishing excitement. The other abundant group of fish was the young bass in the 2 to 6 inch range (34 of 83 bass, 41%). This size group represents the recruitment from the 2005-year class. All bass were released as no age-growth data was collected this year. The bass do not appear to be growing that well during their first year of growth. The limited number of bass in the 8 to 10 inch range represents the poor recruitment from the 2004-year class. The bass fishery appears to be driven by some older fish that have managed to survive over the years. It was interesting to note that we collected 4 bass in the 20-inch range and only two 12-inch bass. The sample revealed the presence of six bass greater than 4.5 pounds in weight. Due to these two groups of bass, the average bass length was 10.6 inches. The largest bass by length measured 21.1 inches. The largest bass by weight measured 5.7 pounds. Our sampling efforts are just a representative picture of the fish community collected along the six-shoreline sites on April 25, 2006. Larger bass may have been able to escape from the electrofishing boat or may just be living in other areas of the lake that were not sampled.

With largemouth bass being the most popular game fish in this country, it has been considered that a "preferred" bass is one that is over 15 inches in length. It is through this size classification that population dynamics are analyzed. The PSD (Proportional Stock Density) is the proportion of bass in the population over 8 inches (stock size) that are also at least 12 inches (quality-sized). The sample showed an extremely high PSD value of 82, which is a direct reflection of the 40 quality-sized bass. The sample had a total of 49 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of bass in the population over 8 inches that are also at least 15 inches. The high RSD-P value of 49 is a direct reflection of the 24 preferred fish being collected. The 2006 PSD and RSD-P values are much higher than the 2003 values (PSD = 56, RSD-P = 29).

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. The higher the value, the better the condition of the fish in terms of overall body mass. Weights were taken on all 83 bass. The relative weight values for stock, quality, preferred and memorable bass (>8", >12", >15", >20") were 99, 99, 100 and 96 respectfully. These relative weight values fell within the desired range of 95 to 100 and show an increase from the 2003 sample (Wr stock: 93, Wr quality: 88, Wr preferred: 86 and Wr memorable: 88).

The sample revealed the bluegill fishery to be dominated by fish less than 6 inches in length. Electrofishing effort was able to collect 175 bluegills over the course of three sample runs (1 hour). This CPUE of 175 bluegills/hr shows a decrease from the 2003 sample (547 bluegills/hr). The 2003 sample was conducted during the middle of May. This could easily explain the higher abundance of bluegills along the shoreline due to the fact that bluegills tend to spawn a few weeks later than bass. The size distribution

can be seen on the attached length frequency graph. The abundance of small bluegills brought the average sized bluegill down to 3.2 inches in length. The PSD for bluegills is the proportion of bluegills over 3.15 inches (stock size) that are also at least 5.9 inches (quality size). Due to the number of smaller fish, the bluegill PSD was only 9. The collection consisted of only 7 quality-sized bluegills in the 6 to 7.5 inch range. The PSD value is well below the desired 20 - 40 range that would represent a balanced bluegill population.

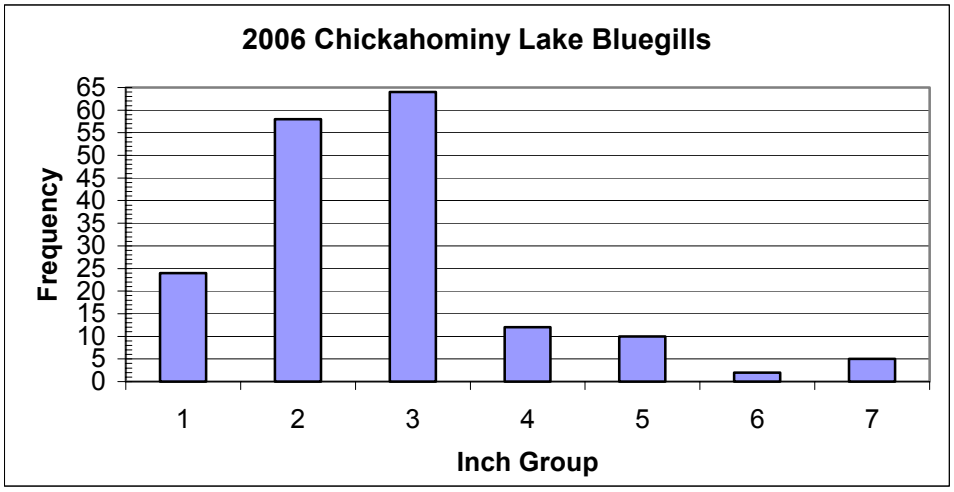

Figure 2. Length frequency distribution of bluegills collected during the electrofishing survey of Chickahominy Lake on April 25, 2006 (N = 175, CPUE = 175 f/hr)

Trap net sampling was conducted on Chickahominy Lake on March 8 - 9, 2006. The main purpose of this type of sampling is to collect the schooling fish such as black crappies that normally would not be fully represented in an electrofishing survey. The reservoir was divided in half with 10 trap nets set on the lower half of the reservoir the first night and then 10 nets reset to the upper half of the reservoir on the second night. A total of 20 net nights were used to assist with the evaluation of the fishery. The trap nets were able to collect 16 species of fish. The nets were very successful in catching bluegills. A total of 1,582 bluegills were collected over the course of two nights. The bluegills ranged in size from 1 to 7.5 inches in length with the majority of the bluegills in the 2 to 4 inch range. A total of 101 bluegills greater than 6 inches were collected. No bluegills greater than 8 inches were collected. The abundance of small bluegills offers a great prey source for the adult predators in the fishery.

The black crappie population appears to be in decent shape with the majority of sample consisting of crappies in the 8 to 10 inch range. The electrofishing sample was only able to collect 19 black crappies for a CPUE of 9.5/hr. This catch rate is lower than the 2003 sample (CPUE = 13.4/hr). Black crappies tend to school in waters deeper than bass and bluegills. Taking this into account, the typical shoreline sample can be very random as to whether or not a school is encountered during a sample run. The largest crappie collected in the electrofishing run measured 12.9 inches with overall average size equal to 8.4 inches.

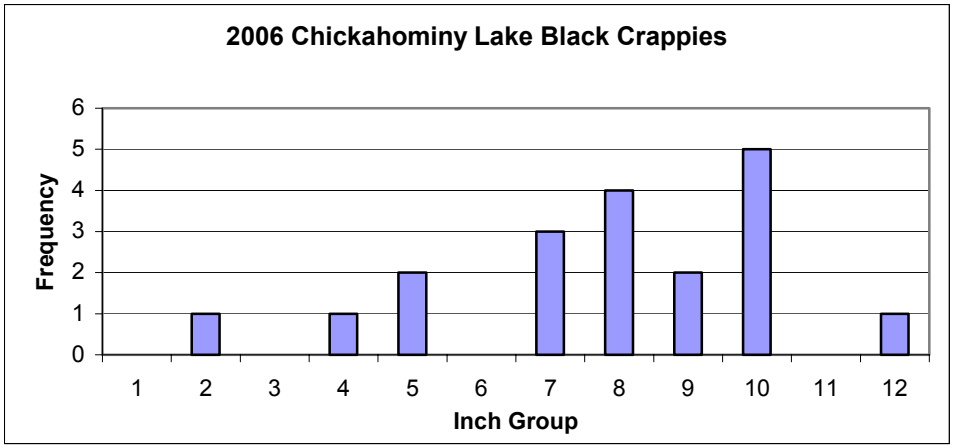

Figure 3. Length frequency distribution of black crappies collected during the electrofishing survey of Chickahominy Lake on April 25, 2006 (N = 19, CPUE = 9.5/hr)

The trap net survey collected a total of 129 black crappies for a catch rate of 6.45 crappies/net night. The upper half of the lake yielded 87 black crappies and the lower half produced 42 black crappies. The majority of the sample consisted of crappies in the 9 – 11 inch range. Our most productive net was set just to the west of Eagles Landing along the northern bank. This net provided some excitement with the collection of 52 black crappies.

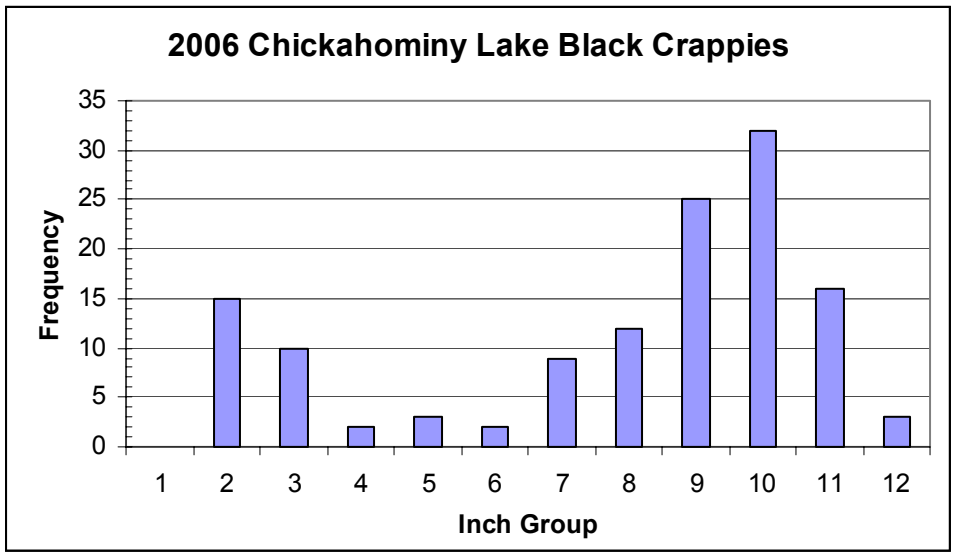

Figure 4. Length frequency distribution of black crappies collected during trap net survey of Chickahominy Lake on March 8-9, 2006 (N = 129, CPUE = 6.45 f/net night)

The bowfin population was represented with a greater abundance than past samples. The collection of 95 bowfins for a CPUE of 47.5/hr is the highest catch rate on record for Chickahominy Lake electrofishing surveys. The 2003 sample revealed only 22 bowfins for a CPUE of 11.8/hr. The 2006 sample revealed an average-sized bowfin to be

18 inches in length. The largest bowfin measured 30 inches and weighed in the 12 to 13 pound range. A good proportion of the sample consisted of bowfins in the 13 to 17 inch range. The sample collected 8 bowfins that measured 24 inches or longer. The bowfin fishery will provide a lot of excitement for the average angler that fishes Chickahominy Lake.

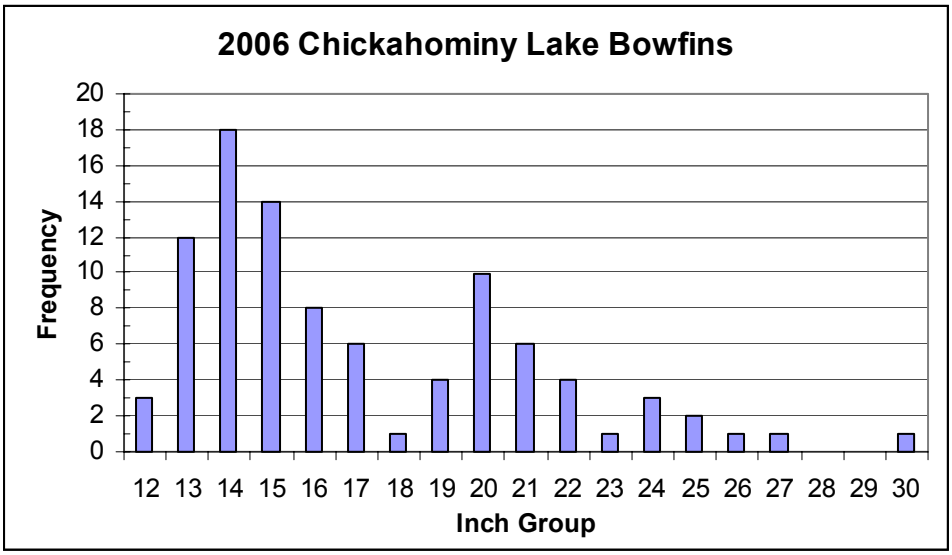

Figure 5. Length frequency distribution of bowfins collected during the electrofishing of Chickahominy Lake on April 25, 2006 (N = 95, CPUE = 47.5 f/hr)

The chain pickerel population of Chickahominy Lake has historically provided a lot of action for anglers over the years. The sample revealed a limited number of chain pickerel with only 21 chain pickerel collected (CPUE of 10.5/hr). This catch rate is lower than the 2003 sample (CPUE = 30/hr). The 2006 size distribution ranged from 7 to 20 inches. Nine of the chain pickerel were in the 16 to 20 inch range. The average-sized chain pickerel measured 13.3 inches due to the presence of 10 pickerel in the 7 to 12 inch range. Two additional chain pickerel were collected in the trap net survey and they measured 18.5 and 20.75 inches in length. The low abundance encountered during the electrofishing survey of 2006 may be a reflection of the entire population or just a reflection of the sites sampled on that day. Future sampling will help to determine the strength of the chain pickerel fishery.

The redear sunfish population appears to be in fair to decent shape. A total of 74 redear sunfish were collected during three electrofishing runs for a CPUE of 74/hr. This catch rate is not as impressive as the 2003 sample (CPUE = 117/hr). The 2006 size distribution consisted primarily of 4 to 6 inch fish. Due to the abundance of redear sunfish in the 2 to 4 inch range, the average size redear sunfish measured 4.6 inches. The largest redear sunfish measured 9.9 inches. The trap net survey collected a total of 130 redear sunfish for a catch rate of 6.5 fish/net night. These fish ranged in size from 2 to 9.5 inches. The trap net sample was similar to the electrofishing sample in that there

were numerous redear sunfish in the 2 to 4 inch range. Sampling a few weeks later into early May, would have most likely produced higher catch rates of redear sunfish. Early to mid-May is usually the best time to find the adult redear sunfish holding tight to the banks as they cruise the shallows in search of spawning sites.

A total of only 11 yellow perch were collected during the electrofishing survey. The CPUE of 11/hr is not that impressive, but it is still showed the slightest improvement from the 2003 survey (CPUE = 10.7/hr). The size distribution was very similar to the 2003 survey and consisted primarily of perch in the 5 to 8.5 inch range. The average sized yellow perch measured 7.6 inches with the largest yellow perch measured at 9.1 inches. Yellow perch have historically been hard to collect from Chickahominy Lake. Electrofishing efforts have yielded low catch rates. The majority of the yellow perch movements into and around the shoreline come early in the spring before we sample the lake. Only one yellow perch was collected during the 2006 trap net survey and only 3 yellow perch during the 2005 survey.

The electrofishing survey collected a total of 8 longnose gar. The catch rate of 4 gar/hr showed an improvement from the 2003 survey (CPUE = 1.6 gar/hr). The 2006 size distribution ranged from 27 to 34 inches. Chickahominy Lake used to produce an abundance of trophy gar during the 1990's. Reported citation catches of gar have declined over the last few years.

The remaining nine species collected during the electrofishing survey were in low abundance. These species were brown bullhead, creek chubsucker, flier, blueback herring, gizzard shad, golden and spottail shiners, bluespotted sunfish and warmouth. These fish add to the diversity of the overall fishery and may provide some limited angling opportunities.

The 10 remaining species collected during trap netting that were not specifically mentioned within the text are: largemouth bass, bowfin, brown bullhead, creek chubsucker, American eel, flier, pirate perch, golden shiner, bluespotted sunfish and warmouth. All of these species were collected in limited abundance except for the creek chubsuckers, flier and warmouth. A total of 85 creek chubsuckers were collected. They ranged in size from 3 to 15 inches with the majority in the 12 to 14 inch range. A total of 87 fliers were collected during the 2 nights of trap netting. These fish ranged in size from 3 to 9.5 inches with the majority in the 6 to 8 inch range. The trap netting collected a total of 89 warmouths. These fish ranged in size from 2 to 7.5 inches with the majority in the 5.5 to 7 inch range.

Chickahominy Lake provides a variety of fish species for anglers to target. The combined efforts of the electrofishing and trap net surveys revealed the presence of 19 species. The majority of the angling action will come from the largemouth bass, bowfin, black crappies and chain pickerel. The lake offers plenty of opportunities to catch bluegills and redear sunfish even though they are not all that large. Although no blue catfish were collected during the 2006 surveys, anglers have been able to catch some nice blue catfish over the last few years. The 2005 trap net survey was able to collect a fair

number of blue catfish in the 17 to 25 inch range. The overall number of recorded citations has dropped for Chickahominy Lake over the last few years. Only 23 citations were reported during 2006. These citations consisted of largemouth bass (2), chain pickerel (7), yellow perch (6), longnose gar (3), bowfin (2), blue catfish (2) and channel catfish (1). Chickahominy Lake still provides a very scenic area of the state where anglers have the opportunity to enjoy the resource and hopefully catch some decent fish.